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Wildlife and Related Natural Resources

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JOHN N. DALTON, GOVERNOR

Commission of Game and Inland Fisheries

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# Letters

## INTERCEPTED LETTER

Mr. Frank Everest, Jr.  
Chairman, Commission of Game and Inland Fisheries

Dear Mr. Everest:

I would like to share with you my excitement over what has happened following the publication of the article about my stained glass work ("Stained Glass Wildlife," October 1980).

I was part of a three-day "Medley of the Arts" show in Hampton, which began the day after the release of the magazine. I was astonished at the number of people who recognized me and my work and who said they had just finished reading the article. . . My work completely sold out. . . and I believe it was the magazine article that gave my pieces credibility.

Once back home, the phone began ringing. . . I could go on and on about the calls I've had from all over the state. . . your readership extends beyond Virginia.

As chairman of the Game Commission, you can be justifiably proud of Virginia Wildlife for it truly represents your organization in the best possible manner. Please thank all the persons involved in creating the article. . . My special thanks go to Mr. Francis Satterlee for his inspiration and the magnificent job he did with the article.

Sincerely,

Liz Ordway  
Seaford

*We're excited, too! And thanks for the kind words for our staff.*—Assistant Editor

## MISTAKEN IDENTITY

The man and the boy in the picture for National Hunting and Fishing Day (back cover, "To Insure the Future," September 1980) are without a doubt my husband and son. They have hunted in various areas of the state and my son is now majoring in forestry and wildlife.

Peggy Davenport  
Williamsburg

*I suppose we really achieved an air of universality with that photograph, for you to have identified with it so closely. Actually, the models are one of our employees and the son of another employee. Your husband must have been a very good teacher and hunting partner to have instilled such a love of the outdoors in your son.*—Assistant Editor

# Editorial

## SPORTSMAN'S EDUCATION

Virginia's Hunter Education Program has come to the attention of quite a few non-hunters in the past couple of years. Since we just gave the program a \$175,000 injection of federal funds this fiscal year, we would be quite disappointed if people didn't notice. These federal funds are from excise taxes levied on guns, archery tackle and shooting supplies. The sportsmen asked that these taxes be imposed and the funds be used for hunter education or wildlife restoration. Until recently, Virginia had opted to use them for the latter. Currently, it seems the hunters are having more problems than the wildlife.

Some newspaper articles, letters to the editor and correspondence to our office have been critical. Some think that the program is a recruitment drive for hunters. The course is usually taught as an optional portion of the physical education program and only those who feel they need it are urged to attend. Some people do not realize that sportsman education is taught only to students 12 years old or older; it is not taught to children who are too young to understand it. The National Rifle Association designed the original course over 20 years ago and still actively participates in the program. Some condemn the program based on their feelings about the NRA.

While hunting is not a particularly dangerous activity, deaths or injuries which occur while one is engaged in recreation seem a little harder to take than when associated with our more necessary activities. Riding in trains, planes, cars or boats is more dangerous than hunting, as are most physically active sports, such as skiing or swimming. About 19 percent of the hunters in Virginia who take the sportsman's education course are involved in less than one percent of hunting accidents. Since even one life saved or injury prevented makes the program worthwhile, both the Game Commission and hunters strongly support it. Hunters find it comforting to know that others out there have had instruction and have not just picked up a gun from a sporting goods store counter and stepped into the woods.

Virginia's Hunter Education Course takes six hours, including administration of the 50-question exam. Virginia game wardens and volunteer instructors from Operation Respect do the teaching. The course covers traditions and ethics, guns and ammunition, primitive weapons, sportsmen-landowner relations, safe gun handling and hunting procedures, first aid, game identification, proper shooting, management, and hunting technique. It is a pretty intensive course for the short time available in presenting it. Four films and numerous slides are used for graphic illustration.

Hunter Education is only the first step in a planned program of sportsman education in Virginia. Yet to be developed fully are boating safety and fishing courses. Ultimately there will be advanced courses for young people and adults. Recreational users are being crowded so much by the shrinking areas to practice their sport that they need to have training for sheer tolerance as well as safety. If they can't be taught to get along with the public and each other, their sports won't survive.—H.L.G.





I don't know how or when it happened, but it happened. At some time in the recallable past I was a fisherman, then suddenly — an angler.

Perhaps the words *angler* and *fisherman* should be defined but they defy all attempts at definition. A fisherman fishes, an angler fishes. A rod is not a pole, nor is a pole a rod. They are different, yet have the same facility for accomplishment, and so it is with "angler" and "fisherman." They are different, yet essentially the same. Does a fisherman (as a friend suggested) use live bait and an angler lures or flies? Decidedly not, the opposite is often true. Is one a sportsman and not the other? No, sportsmanship is not a factor.

What, then, separates a fisherman from an angler? Perhaps it's only age and a general slowing of the reflexes. Perhaps it's something more. A promise? The first warm winter breeze is a promise of spring and summer. To an angler, fishing is a promise, too.

I learned to fish when I was 10 or so. I drove my mentors to distraction by flopping the hook in and out of the water and by constantly needing unhooking from stumps, snags, trees, brush and other small people. I was fussed at for every sin imaginable, from scaring the fish to scaring my parent. But somehow, I learned to fish. The night seining for mad toms in rocky streams was an adventure itself. Even now, many years later, I can still smell the pungent odor of the stream as we stirred its warm, sluggish waters with the seine. There was the adventure of the night: the danger (more imagined than real) of seining a copperhead and the necessity of dipping your hand into a writhing, stinging mass of mad toms.

The next phase in my development came when I discovered that I could actually read about fishing in magazines every month. The magazines allowed me to fish with the great ones (who often referred to themselves as anglers). I consumed every word, not believing much of what I read as it seemed too impossibly fantastic to be anything but fiction.

With the influence of the printed page, the next step in the growth of this fisherman was preordained, yet held back by the men I fished with. They scoffed at lures, light tackle, and other such "nonsense." Somehow, despite their scoffings, I found out that plugs not only caught more fish than live bait, they were easier to use. Plugs and lures didn't sting you nearly as often as mad toms and they didn't die as quickly as minnows. I also learned that plugs and lures had a way of getting high into trees where even "flood bass" couldn't reach them. They also got stuck in logs, on ledges, in weeds, and once in my sister's arm. They were expensive and the losses were significant. I invariably lost the only producing lure I had.

Progress continued; in high school and later, I was a fisherman. My peers said that I could catch fish when other fish couldn't even find fish. An exaggeration, but a compliment that was a tasty bit of dessert to a glorious repast needing none. Fishing was all the reward needed. The pull of the river against my legs, the summer sun burning me bronze with a tan that winter couldn't even erase was "paradise enow."

The hours spent on the rivers and streams were the most important of my life. Scenes from those early years are vividly etched on my memory. I won't soon forget the two wild turkeys who flew across the river 100 feet below me, nor the buck with massive antlers, still in velvet, who swam the river within ten yards of my mother and me as we fished from a boat. An eagle soared overhead on warm summer days, his beauty and magnitude only a guess, as he stayed very high. I can still see bass popping in the river like popcorn as they tried to catch the hovering dragonfly. These memories are still a very real part of my life. They have not faded. I guess I'll always remember the world record smallmouth (to this day I believe he was) who was on my line for a moment. He hit a floating plug, jumped once, then broke the line with a long run and another leap. The sinking feeling I experienced when the line parted turned quickly to anger, as I realized he had taken my only producing plug.

There was the thrill of catching 40 bass from beneath the boughs of a willow or of betting a buddy five dollars that I could catch 100 bass before noon. I can remember making boastful promises of limit catches of fish of a uniform length up to 18 inches, then amazing everyone by delivering. There are memories of friends and relatives who came to enjoy our camp and eat our fish and hush puppies. They came with advice, and jealousy at times, but usually with good cheer, good spirits and a happy outlook that made them welcome. I'll always remember night catfishing jaunts that made liars of all the experts. Channel catfish do break water, in fact, they'll even tail walk on occasion. And who could forget bass jumping into the boat at night as we floated over them in shallow water? Once an 18-inch, two-pound smallmouth jumped into my mother's lap as we floated quietly near the bank. He was a surprise, but a welcome one — the best we caught that night, though usually we caught strings of channel cats so heavy none of us could lift them alone. The night fishing, camp life and the river, the bass, deer and other wildlife were all part of my world. I knew it well. I lived in it with the vigor of unbridled youth.

Soon after high school Uncle Sam called, and I spent some



# From Fisherman to Angler An Evolution

by Robert W. Olmstead

time traveling and learning about other worlds. After the service I got married and settled down (to more fishing). Somehow I discovered that trout were not the magical fish I had imagined them to be. I learned that if I stayed out of sight they were not very hard to catch. Along with the trout, I discovered the fly rod and devoted many hours to learning its judicious and exacting use. Though I had recently discovered trout fishing and was (and am) thrilled by it, I often returned to my river for the bass, catfish and bluegills. I had become a fisherman's fisherman, but still not an angler. Yet I was aware of no shortcoming or loss. I still read everything printed, and fished nearly every day.

Conditions changed. Economic necessity (I thought) decreed that I fish less and work more. For three years I was an occasional fisherman. I worked hard to amass a fortune before bowing to the cold fact that I'd simply rather fish than work. I returned to my streams and lakes.

Suddenly I became an angler! I didn't notice the change all at once, but it was there. Pieces of evidence fell into place as I resumed my love affair with river and stream after an unnecessary and long absence. How do I know I'm an angler? Well, the clues are ample proof. If you haven't experienced the transition, perhaps you will. If you have, you'll know what I'm talking about.

As a fisherman, it was important and necessary to catch fish. As an angler it's only important to go fishing. A fisherman gets up early to catch fish when they're feeding. An angler gets up early to be a part of the awakening of life. The sight of the fog being burned off the trout stream by a cold, gray-pink sun is ecstasy enough. The early morning breezes sift the fog through the willows, purifying the air so that its clean freshness overwhelms you. The beauty and cold freshness of the water give the morning such a completeness it almost seems a sacrilege to cast. Then rings swell from a dimpled "slurp" where a fish took a fly. The spell is broken, or rather exchanged for a more active one that's just as serene and beautiful as the fly floats to the waiting trout.

A fisherman looks for a rise to catch a fish. An angler looks for a rise to see the fish rise. To watch the sleek beauty and powerful grace of the trout as it becomes a part of life, —and feeds.

As a fisherman I was always eager to rush to the stream and begin fishing, as an angler I ease toward the stream and its element, to be a part of it, to add my life to its, with my thrill the greater.

As a fisherman I cast to a fish with the hope of being lucky and catching him. As an angler I cast to the fish knowing I will be lucky. I already am. I am here. It is enough.

As a fisherman I could never understand how angling

writers had time to take all those pictures that end up in magazines. As an angler I hardly have time to fish for all the pictures I must take. I must capture some small part of the magic of the stream and its world on film, that the experience never quite dies. Everything is subject: the fog, the stream, the insects, rocks, fish, other fisherman, the day, all of it and every part of it.

As a fisherman I had to know how the fishing is around the bend or at the next pool. As an angler, I can't solve all the mysteries of the pool in which I'm standing.

As a fisherman I enjoyed catching fish. As an angler I enjoy playing fish. I feel more of the powerful surge and tail-smacking tricks of the fish now than I did as a fisherman.

As a fisherman I was always disappointed when a big one got away. As an angler I'm invariably disappointed if he does not. Often I'll even help him make his escape, always being careful to do it in a subtle manner, so that even I don't realize it.

As a fisherman I loved to fish and often fished until exhaustion. As an angler I can always quit, lie back against a tree and enjoy the solitude. There is never a burning desire to fish on, and catch fish. It is enough to be here and to be still and to look and to listen.

As a fisherman I used to hate to quit and go home. As an angler I'm always glad to go home, to show my girls the fish I kept, develop pictures and plan (mentally) my next adventure.

As a fisherman I disliked fishing alone. As an angler I often dislike company and consider conversation an intrusion on a private interlude.

As a fisherman I used to look down on live bait users. As an angler I use live bait occasionally when it suits my mood, both in the finding of it and its use.

As a fisherman I used to catch 100 bass by noon. As an angler I don't count.

As a fisherman I never had time to stop and eat. As an angler I never get hungry, for when the soul is full, the man is full.

As a fisherman I always caught many fish. As an angler I may spend an entire afternoon, caught by a single brown trout who will rise to every fly but the one on the end of my leader. I will enjoy him more, even if I don't catch him, (especially if I don't catch him) than catching 15 or 20 fish as a fisherman.

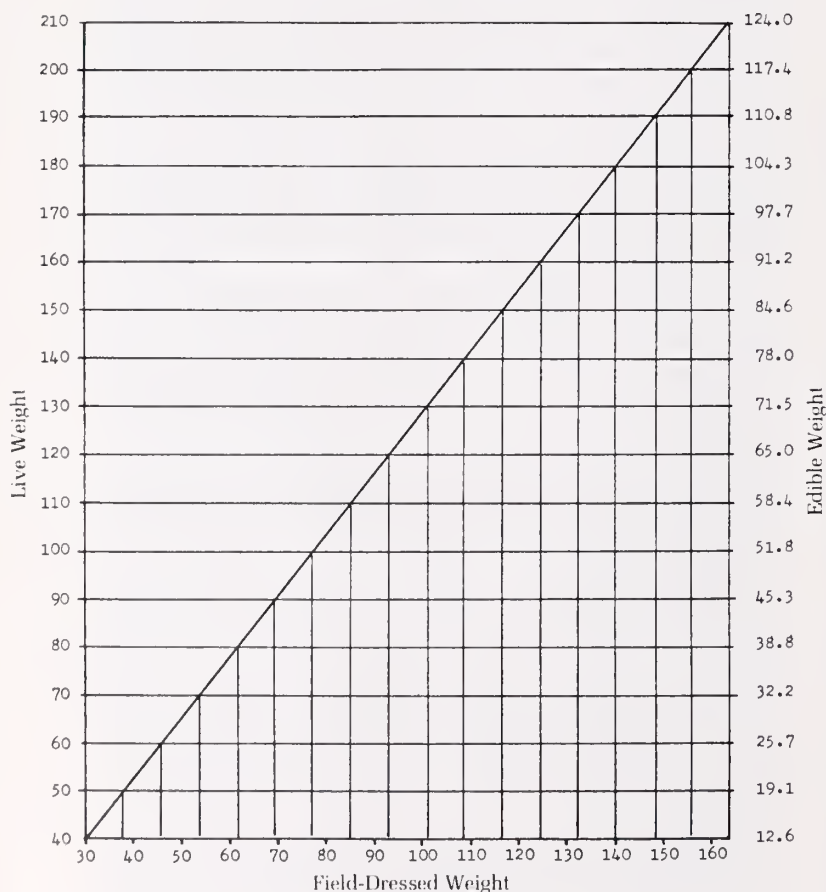
The pleasure of fishing is lost to me as an angler. Instead, I see the ecstasy that is life in the world of a stream and am in tune and one with it. The fish are but one of many necessary parts to the thrill that is angling. □

# A TASTE FOR VENISON

## SOME HINTS ON GETTING THE MOST FROM YOUR DEER

by Charles Peery

White-Tailed Deer Weights  
Conversion Graph



Data from C.W. Severinghaus, New York, 1949

Modern deer hunters are now realizing the value of their hunt. Once we thought only the pioneer found value in his harvest. With the cost of meat at the supermarket, successful hunters can get a bit ahead of inflation.

The 1979 deer kill in Virginia was 69,926. Assuming the average live weight of all these animals was 100 pounds, these deer would have furnished 1,811 tons of edible venison, or 51.8 pounds per deer. This is a reasonable assumption, since a yearling buck deer will average near 100 pounds field dressed weight.

Today it pays to process your deer promptly and properly. Here are some helpful hints.

Immediately upon the kill, field dress your deer; that is, remove all the internal organs except the liver. If a stream is nearby, rinse the inside with cold water, taking care not to pollute the stream. Prop the carcass open with sticks and hang it in the shade to drain it.

During the course of these events you must check the deer at an official big game checking station.

If the weather is warm, you should not delay too long in skinning, butchering and placing the carcass in cold storage. Don't carry the carcass around on the hot hood of a vehicle. If you plan to have the head mounted, skin the neck out from the shoulders to the skull, and get to the taxidermist for storage as soon as possible.

Most people who say they have no taste for venison have been negatively influenced by meat that was improperly handled immediately after the kill. This is a valuable source of protein. Don't waste it!

The graph accompanying this article is adapted from the work of C. W. Severinghaus in New York. By knowing the live or field dressed weight of your deer, you can calculate the number of pounds of edible venison available. Clip the graph and keep it for future reference.

Good hunting, and good eating!

Charles Peery is a supervising game biologist for the Commission of Game and Inland Fisheries.

by Jack Gwynn

# THE WILD TURKEY CHALLENGE

The future success of the wild turkey in Piedmont Virginia rests in the hands of today's decision makers.

Piedmont Virginia's wild turkey presents a challenge to management experts. The problems surrounding this popular game bird can be thought of in terms of two categories, data collection and range.

Simply put, to manage wild turkeys, we need good data from the field. Without adequate information, increased assumptions are made, increasing the possibility of error which decreases credibility and the ability to manage properly. In addition to annual information, we need the ability to present this information for consideration by those who should use it and by those who will allow it to be used: the decision makers and the public.

In Virginia, we have an annual (spring and fall) reported legal harvest by licensed sportsmen and a system for sampling the rearing success in counties that support a fall either-sex season. We also conduct a questionnaire survey of hunter success each five years. Like other states, we do not yet have an annual estimate of the population based

upon an objective scientific technique. Such a technique is probably neither technologically nor economically feasible today. The absence of an annual population index results in the assumption that the annual harvest is a measurement of the annual population level.

It seems reasonable that a state cannot long harvest increasingly larger numbers of wild turkeys with a constantly decreasing population trend or vice versa. However, it is possible to conceive of circumstances that would cause this to occur for a year or more and thus create credibility problems. Annual measurement of hunter success by questionnaire surveys might offset this lack of a population index but it is unclear whether the limited benefits of an annual hunter survey would offset the rather substantial additional costs.

From 1968 to 1976 at the Fisheating Creek Management Area in Florida, about 50 percent of the wild turkey poults suffered mortality during their first three or four weeks of



# “In Virginia we see a serious problem of increasing urbanization and decreasing suitable wild turkey range.”

age (Williams and Austin, 1979, unpubl.) The population at Fisheating Creek is known to have a variety of protozoan, helminth, viral, and bacterial diseases (White and Forrester, 1979, unpubl.), which, in concert with malaria (Forester, Et. Al., 1980), could act as important factors of poul mortality.

Good annual field data includes disease monitoring to determine disease problems throughout the state, especially in those counties with high turkey populations. Adequate field information educates and motivates the public and sportsmen to report diseased and sick wild turkeys, and to report harvested birds to checking stations so the annual reported harvest data does not vary in quality. It also educates and motivates the checking station operators, who voluntarily give of their time to remove the required feathers for sexing and aging data used in measurement of the rearing success ratios.

Information is of no value until used. This implies that annual field data is presented in an attractive and timely way, so that the public, sportsmen, and decision makers have the information for use. There are difficulties involved here. In Virginia, the wild turkey season ends on December 31, but the data must be processed, analyzed and reported by the last Friday in February when the Commission holds its first public meeting to consider regulations for the coming season. Further, the data needs to be ready by the end of January for the six regional meetings of Commission and related agency personnel, which precedes the Commission public hearing. Virginia's current system dictates that general principles be identified as to the effect of hunting regulations upon populations so that the regulations need not be changed each year.

We imply that given good field information, adequate time to analyze and present it, good decisions will result; however this is not a guaranteed truth. Still, it is more likely that good decisions will be made through the use of good information than with poor information. The decision on what kind of hunting regulations are required to manage the wild turkey probably hinges upon the quality of information at hand when such decisions are made.

## MAINTAINING ADEQUATE RANGE

It is obvious that we cannot sustain wild turkey flocks in the streets of downtown Washington. Although we have found that the wild turkey is a fairly adaptable bird, it needs

certain combinations of food, cover and water, plus a favorable attitude from man. Wild turkeys have been found to coexist with man in fairly urbanized environments but it requires a benevolent attitude on the part of those humans sharing the environment. This benevolent attitude may be commonly lacking in most urban situations.

Thus, in Virginia we see a serious problem of increasing urbanization and decreasing suitable wild turkey range along a corridor from Washington, D. C. to Richmond, and around other growing populations centers of the piedmont.

The basic problem, as we see it, is man's inability to recognize and come to grips with the seriousness of his own expanding population and increasing standard of living. Secretary of the Interior Udall aptly stated in 1967, "One could contemplate the United States a century from now with calmness if our growth patterns reflected a mature, purposeful national will. Arrogant events and the headlong pace of material progress have left us little time to ask what people are for or to agree on long term societal aspirations. We have learned neither how to grow nor at what pace, and that is our failing and our future trouble." The increasing human population, beside requiring more range (land area) to construct homes, stores, office buildings and factories requires additional lands on which to increase production of food and fiber to meet his increasing needs.

To meet the world's human needs requires increased production of food and fiber from each acre of land. Increased production invariably (although not necessarily) leads to land management practices that will eliminate wild turkeys or reduce the carrying capacity of the range for wild turkeys. Increased production might possibly increase carrying capacity on some ranges. Just as the current success or failure of the wild turkey has rested in the hands of past and current land managers, the future success of the turkey is in the hands of present and future land management decisions.

Durward Allen has said that wild animals, and in general the natural scene, have far-reaching significance for human welfare. Allen says that this view has social dimensions not measurable fully or even in a large part in dollars or other economic terms. Thus, Allen concludes, preserving the quality and variety of the American outdoors is justifiable by assumption and principle rather than by economics.

The future success of the wild turkey will ultimately depend upon man's future ability to maintain an environ-





Durant Ball

ment worthy of sharing with wild turkeys. Decisions to the questions of size of clear cuts, increasing use of hardwoods for paper or fuel, use of herbicides and pesticides, conversion to monocultures and cropland and the type of hunting regulations, will all have various impacts upon the carrying capacities of wild turkey ranges. The effects of weather and disease and parasites over which man has even less control are but the icing on the cake of challenge set before the wild turkey manager of the present and future. □

Jack Gwynn is a supervising game biologist for the Commission of Game and Inland Fisheries.

#### Commercial Forests By Type Piedmont Virginia

FOREST TYPE	1950's	1960's	1970's
	ACREAGE	ACREAGE	ACREAGE
Pine	1,910,000	1,465,000	1,621,000
Oak-Pine	661,000	1,002,000	707,000
Oak-Hickory	3,332,000	3,665,000	3,752,000
Total	5,903,000	6,132,000	6,080,000

#### Virginia Bear, Deer, Turkey License Sale

REGION	1962	1978
North Piedmont	41,363	59,368
South Piedmont	22,610	42,856
Total Piedmont	63,973	102,224

#### Virginia Wild Turkey Harvest Data

REGION	1951	1960	1970	1979
North Piedmont	577	639	218	1,868
South Piedmont	718	1,474	217	2,590
Total Piedmont	1,295	2,113	435	4,458

#### United States Census Data

REGION	1940	1950	1960	1970	1978
North Piedmont	376,757	565,326	841,753	1,200,296	1,382,000
South Piedmont	451,236	471,822	496,382	515,714	556,000
Total Piedmont	827,993	1,037,148	1,338,135	1,716,010	1,938,000



# Gunning for Geese

Here are goose hunting  
tips of the experts.

by Bob Gooch

"Damn!"

Startled, I looked up to see what was bothering my Buddy, and followed his gaze to a pair of hunters entering a long, narrow strip of woods that stretched all the way to the pond. That pond was loaded with geese. They had been pitching in to the tiny body of water since soon after dawn, but eventually they would leave to feed in the cornfields. Some would pass over our blind — and then we would get our birds.

"Those fellows want to try for some of the birds following the line of woods to the pond," he said. "When they shoot, the woods will carry the echo to the pond and flush every one of those birds. Better get ready to shoot."

This would be in variance with our plans.

Our field blind was located well away from the pond and the row of trees, and our shooting would not disturb the birds resting on the water. We had expected them to eventually leave the pond in singles, pairs, and small groups to feed in the field behind us. Straggled out and vacating the pond at



Spike Knuth



Many hunters set up their blinds overlooking bodies of water, hoping to catch the birds as they come in (top); one type of field blind is built above the ground, a simple frame structure camouflaged with cornstalks and fodder (above); calls are most effective when young birds are abundant (right).





Spike Knuth







Black or yellow labs, golden retrievers, and Chesapeake Bay retrievers are all top water dogs.



irregular intervals, they would offer good pass shooting most of the morning. We had expected to have our limits by noon.

But now we were more likely to have the air full of birds for a brief moment of fast shooting — and that could be it.

That was one of the goose hunting lessons I learned that cold November morning with Ronnie Clough, a veteran hunter and guide.

Many hunters set up their blinds overlooking farm ponds or other bodies of water, hoping to catch the birds as they come to the pond, but when hunted hard, the geese will eventually leave the pond permanently for a safer resting area. A better plan is not to disturb the pond, leaving it as a drawing card. Then blinds set up safe distances from the water can be used to intercept the birds when they leave the pond to feed.

This is a hunting method used successfully by experienced guides at Remington Farms and professional guides on Maryland's Eastern Shore.

Two general types of blinds are used for this kind of pass shooting.

The field blind we hunted from that morning was built above the ground, a simple frame structure camouflaged with cornstalks and fodder. Some field blinds have roofs, but ours did not. We simply stayed low when birds were approaching, rising at the appropriate time for the shooting. It proved highly effective.

**A**nother popular field blind is the pit blind, a big pit dug in the field and also covered with cornstalks and fodder. It is obviously less conspicuous than a blind on top of the ground, and it can be more effective late in the season when the birds are most wary and gun-shy. The hunter in a pit blind must shove the cover aside to shoot.

Either type blind should be made as comfortable as possible with seats, notched racks for guns, and shelves for ammunition, thermos jugs, and other personal items.

Veteran goose hunters like to take their birds coming into the blind instead of going away. Clean-killing head and neck shots are easier to make when the birds are coming in. A goose going away is usually hit in the body and it can be tough to bring down.

A good breeding year on the Canadian prairies means several things to the Canada goose hunter in Virginia. Obviously it means that there will be more birds over his blinds in the fall, but more importantly it means there will be a good percentage of juvenile birds in the flocks. In good breeding years, the young birds make up as much as 55 percent of the population.

The young birds are the key to successful hunting over decoys. They can be duped by the fakes.

While both silhouette and conventional decoys or dekes can be employed when there are young geese to decoy, silhouettes are the usual choice for field shooting and the dekes for shooting over protected coves, bays, lakes, and rivers. Goose hunters put out a lot of decoys — at least 100.

"Spread them out and leave a good hole in the middle for the birds to land in," is the advice of the experts.

While decoys can be helpful when the conditions are correct they are almost useless when old birds predominate. Then it is best to resort to pass shooting.

Calls, like decoys, are most effective when young birds are abundant. They are simply more vulnerable to even a poorly-blown call.

The call is helpful, particularly when used in connection with decoys. While a champion caller makes an invaluable hunting partner, the average hunter can quickly develop a reasonable degree of proficiency. Part of the secret is to use

the call sparingly. Do not overdo it. Blow short notes.

"Blow the call only when the birds are coming in, never when they are leaving," said Clough.

The lone goose is the easiest to decoy, the most likely to respond to both a call and the decoys. It apparently is seeking company. Large flocks of birds apparently have their minds made up. They have a destination in mind and are difficult to sway. They are also noisy and probably drown out the notes of the caller in his blind.

**T**he weather is also important to the Canada goose hunter's success. The birds tend to feed at night when the moon is full, and this means they will be resting during the daylight hours. Few birds will be in the air. For this reason, goose hunting is generally best immediately after a new moon.

But heavy hunting pressure can keep the birds moving even on that full moon. It is helpful then, even though too much pressure may simply drive the birds to the protected waters of a nearby bay or river.

Hunting is also generally best during cold weather because the geese are forced to feed more heavily to build up energy to combat the cold.

While a well-camouflaged blind will conceal the hunter, it is best to dress in clothing of subdued tones. Camouflage patterns are fine, but not really necessary. Blaze orange and other bright colors should be avoided, however.

The best goose gun has a long barrel, 30 or 32 inches, is full choked, and loaded with magnum shells. It should be at least 12 gauge, though the bigger 10 gauges are gaining in popularity. Most hunters also prefer 3-inch chambers over the traditional 2¾-inch ones, but thousands of geese are taken every season with the shorter shells.

With steel shot now pretty much the order of the day, size 2 loads are the usual recommendation. It is the load which Remington Farm guides stock for their goose hunters, and where steel is required the longer shells become even more important.

Automatic or repeating shotguns seem to be the most popular if for no other reason than that they give the hunter three chances during those brief moments the big birds are over his blind.

Steel shot limits the goose hunter's range. Those 50 and 60 yards you read about should be reserved for areas where you can shoot lead — and BB's. Forty yards is about the maximum safe range for steel.

**J**udging the range can be difficult as the size of the goose makes its proximity deceiving in appearance.

"Wait until you can see its chin straps," is the usual advice given to novice hunters. The chin strap is the white patch on the bird's throat.

A goose that falls dead in a cornfield or on the water is rarely difficult to locate, and for that reason many hunters do not use retrieving dogs. A crippled goose is another story, however, and a bird merely winged can escape — either in a field or on the water. It is then that a crack retriever quickly earns its kennel and rations.

Golden retrievers, both black and yellow Labs, and Chesapeake Bay retrievers are all top water dogs, and a joy to own and hunt. Just watching them work adds immeasurably to the pleasure of hunting. They wait patiently until the bark of a gun draws their attention to the skies. A good dog can be on a downed bird almost by the time it hits the ground.

Duck hunting is the major waterfowling sport in the Old Dominion today, but geese are on the increase all across America. If you have not bagged one of the big birds yet, the chances are good your day is not far off. □



# It Appears to Me

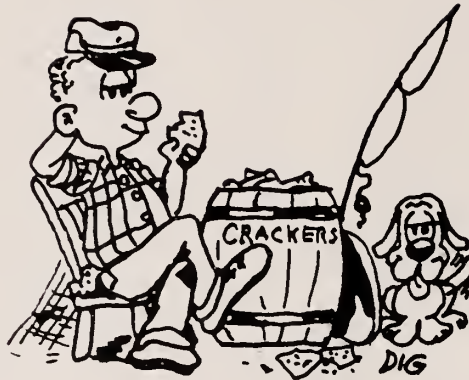
## by Curly

### ... A PERSON OUGHT TO HAVE ONE

When it comes to producing interesting, thought-provoking and useful publications, the good folks down at the National Wildlife Federation are hard to beat. . . and they have done it again. "Wildlife of Forests and Rangelands" is only a twelve-pager, but a body would think it is an almanac what with all the information that is crammed into those few pages. Handily arranged, the booklet emphasizes the major impact on wildlife caused by man's western movement. Although displaced, some species have been able to adjust, others have not and face extinction. In addition to explaining why this all has come to pass, the booklet also outlines just what each animal needs, habitat-wise, to enable it to survive and flourish.

Single copies of "Wildlife of Forests and Rangelands" are available free from the National Wildlife Federation, Department 9, 1412 16th Street, N.W., Washington, D. C. 20036. (Additional copies are available at 10 cents each.)

While we are on the subject of the National Wildlife Federation, I would like to tip you off about a very worthwhile project in which they are involved. It isn't often that I mention things like this, but with all the good free material that has been mentioned from time to time in this column as being available from the NWF, I reckon it doesn't hurt to turn the tables, as it were. . . especially when it has to do with wildlife. It seems that the war in Afghanistan had done some downright awful things to the wildlife in that country over the past two years. Estimates have it that, as early as 1979, upwards of 14,000 wild critters were slaughtered. The situation for elephants in Uganda is downright sad. Ten years ago they numbered about 30,000; currently only some 2,000 remain due to the war and indiscriminate killing during the rule of Idi Amin. Anyhow, all of us can do something about the situation by contributing to the fund-raising campaign begun recently by the NWF. Whatever is collected in this drive will go towards buying equipment for Ugandan rangers who are committed to stopping the slaughter. Contributions should be sent



to the National Wildlife Federation, Department U-80d, 1412 16th Street, N.W., Washington, D.C. 20036.

Seems as though we talked about the advantage of home improvement not too long ago, but seeing as how it is a subject of more than a little value, it is worth repeating. This is certainly more important than ever for folks who want to improve their "diggin's" from the standpoint of room, but more important energy-wise. The end product is two-fold, if the emphasis is truly on saving energy, for not only do you benefit by saving money but also persons are eligible for tax credit in many instances. It certainly is worth the time to check into the possibilities, because if what you have done or plan to do qualifies, it is possible that as much as 15 percent of an expenditure of \$2,000 can be taken as credit. All you need do to begin is to contact your nearest Internal Revenue Service Office and ask them to send you their free publication entitled "Energy Credits For Individuals."

### ... FOR YOUR BOOKSHELF

Over at your friendly Department of the Interior, a new publication has surfaced recently which might be of interest. Entitled "Atlantic Coast Ecological Inventory," it is the very first comprehensive series of maps of natural resources on the Atlantic Coast. Although it will probably be of the most use to industry and local governments as a tool for planning, I reckon those of you who are members of Conservation Organizations will also find it useful. The maps depict the 76,000-square-mile coastal zone, all important wildlife species, their habitats and major land use

designations. With these maps, it takes but a few seconds to choose any place from Florida to Maine on the East Coast, determine the wildlife and fish which inhabit the area, and locate the major land use designations such as state and national parks, state waterfowl management areas or national wildlife refuges. In all, 15 coastal states and 364 plant and animal species are covered. All of this is plotted on a geological survey base map at a 1:250,000 scale. This amounts to about four miles to an inch. In addition there is a narrative report of 163 pages which serves as a user's guide. The maps are distributed in a four-by-eight-inch pocket-fold format, bear the same name as the geological survey's topographic series, and sell for \$2.00 each from the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, Virginia 22202. When you order, make your check or money order payable to the U.S. Geological Survey. If you are also interested in the User's Guide, you must order it from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402. The price for the "Atlantic Coast Ecological Inventory — User's Guide and Information Base" is \$5.50.

Virginians, especially those of you who subscribe to the *Richmond News Leader*, *Times Dispatch*, or both, are no doubt familiar with the photo byline David D. Ryan. His great photography has brightened many of my days and certainly yours as well. Not long ago Dave did a photo-essay book entitled "The Falls of The James." Contributing to the book was another Richmonder, Newton Ancarrow. In case you haven't seen this marvelous mixture of sight and sensations, do so, but you had best hurry since not many copies remain. Selling for \$12.00, the book is available directly from David D. Ryan, 6701 West Franklin, Richmond, Virginia, 23226 or from bookstores.

### ... AND THEN

As we enter this new year with our new President, I calculate that it is time, no matter what our politics may be, to breathe deep of the sweet smell of freedom and unabashedly show our collective pride at being Americans!



## Sergeant Ted Ward

Ted Ward is a native of Whitewood, Virginia, which is located in rural Buchanan County. He grew up in this beautiful part of the Commonwealth and recalls with great fondness how he, while still very young, "trailed after" his father when he went fishing. Unfortunately, the elder Ward passed away while Ted was still a teenager. As is often the case, events of this nature cause major changes in the lives of those involved and such was the case in the Ward family. Ted went to live with relatives in Medford, Oregon, where he worked as a ranch hand on a spread near the Rogue River. About four years later, he returned to Buchanan County and worked with his uncle in the store business.

In October 1940 he enlisted in the United States Army. Following the outbreak of World War II, he served with the 70th Armored Battalion and participated in three of the most contested invasions of the war. They were Africa, Sicily and the Normandy Invasion on "D" Day. In spite of this hazardous duty, he was never wounded.

Following his discharge in August 1945, he returned to Whitewood, where he again worked for his uncle. In 1951 he accepted a job as Game Warden with the Commission of Game and Inland Fisheries and was assigned to duty in southwest Virginia.

Currently his responsibility involves the warden activities in the counties of Buchanan, Tazewell, Bland and Wythe. Ted plans to retire on June 30, 1981, at which time he will complete 30 years' service with the Commission. Looking back on his work with the Commission, he says that his greatest rewards have been working with young people, sportsmen and wildlife.

He feels that he will have no problem staying busy when he retires, for the hobbies that he has acquired will more than fill his days. Ted is married to the former Maudie Keene from Kentucky. The couple has three children, all of whom are girls, and like their mother, all three are teachers. Mrs. Ward continues to teach in the school system near the Wards' home at Pilgrim Knob in Buchanan County.



# Virginia's Changing Topography

## Part 2: The Chesapeake Bay

by Price Smith

Eastern Virginia is no stranger to geological change. Changes in the volume of ocean water coupled with uplift or subsidence of the land have caused sea level to rise and fall many times. About one hundred and forty million years ago the coast of Virginia lay west of present-day Richmond. The sea subsequently receded and advanced several times but eastern Virginia remained essentially submerged for much of this time.

When eastern Virginia lay under water, large quantities of sand, gravel, and silt eroded from the Appalachians in the west and were deposited in the estuaries, bay, and Atlantic Ocean. These deposits, at a maximum of two thousand feet thick on the Eastern Shore, today underlie Virginia's coastal plain. Thirteen to eighteen million years ago, the coast line existed approximately at today's Fall Zone (Richmond and Petersburg). Four to five million years ago, the coast line extended to the northeast of Richmond and followed the Fall Zone to the south. The stage was now set for the Ice Age that has covered vast portions of North America under ice intermittently for the last two million years. The birth of the Chesapeake Bay was imminent.

Whenever a great ice sheet advanced during the Ice Age (Pleistocene), sea level would fall and dry land would stretch well out onto the continental shelf. The creation of the Chesapeake Bay began with the advance of the first ice sheet and the subsequent formation of the Eastern Shore. Two million years ago a great ice sheet covered much of North America and dry land stretched across all of eastern Virginia. The ancient coast lay many miles east of our present coastline. In a broad valley the Susquehanna River meandered southward, was joined by the Potomac River, and then turned eastward. The Eastern Shore was then only a slight protrusion in the Atlantic coastline, but during the interglacials (when the great ice sheets receded northward and sea level rose), that protrusion was being extended southward by the gradual deposition of shallow marine sediments. With each succeeding advance of the ice, sea level would fall, and the Susquehanna River would flow farther and farther south before turning east toward the

Atlantic. Approximately 80,000 years ago the Eastern Shore had become a definite peninsula. The Susquehanna River Valley was flooded during this interglacial period and formed an ancient Chesapeake Bay. During the onset of the last major ice age (Wisconsin) this ancient bay again became a river valley. By 18,000 years ago the Susquehanna had finally joined all the major rivers of Eastern Virginia. The Potomac, Rappahannock, York, and James Rivers now combined with the Susquehanna before it turned eastward around a well developed Eastern Shore.

There is a possibility that the Susquehanna continued its southward journey across Tidewater Virginia (Norfolk and Chesapeake) eventually turning eastward in the vicinity of Back Bay or Albemarle Sound. However, the evidence for this extended southward journey is not conclusive. Further studies by geologists should find the answer.

The final written chapter for the Chesapeake Bay began when sea level rose about 17,000 years ago. The Wisconsin ice sheet was beginning to recede in North America. By eight thousand years ago, the rising sea level had flooded broad expanses of the Susquehanna River lowland. The Chesapeake Bay was essentially as it is today by 4,000 years ago.

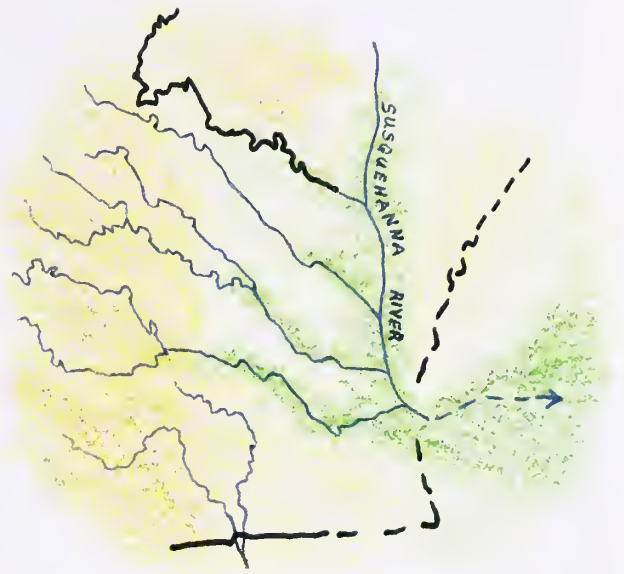
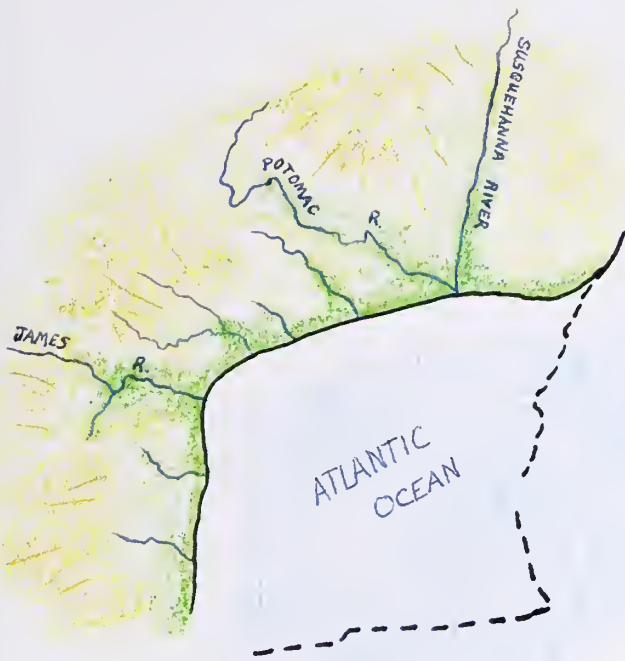
Eastern Virginia (Richmond and eastward) is today a broad dissected sediment plain, a "fringe of peninsulas," dissected by four great rivers, the James, York, Rappahannock, Potomac, and their tributaries. The Eastern Shore and the entire Coastal Plain of Virginia are stairstepped, a phenomenon caused by the series of ancient shorelines that formed the risers, and the sea and river bottoms or lagoons that formed the flats.

It may be hard to contemplate the fact that the Bay, today so beautiful, once was the broad flood plain of the Susquehanna River, or that ocean waves once broke against a sandy shore many miles west of Richmond. Virginia's past stands as a witness to her future, a legacy of change. □

*Price Smith is assistant fish biologist for the Commission of Game and Inland Fisheries.*

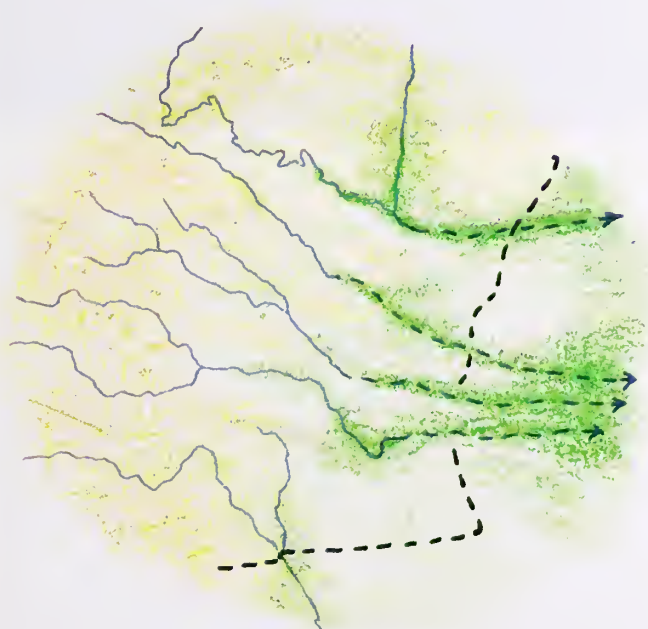


OUTLINE OF PRESENT COASTLINE



140 Million — Cretaceous drainage  
Atlantic ocean extends inland

18 Thousand — Height of Wisconsin Age Glacial  
Susquehanna River flows through Virginia



2 Million — First Glacial period  
Eastern Virginia dry land

Present — Chesapeake Bay Period

# Secrets of Winter Trees

Nature bares winter trees  
allowing us to observe what  
the leaves hide in  
warm weather.

by Pat Cooley

*Raccoons, as well as some other animals, use hollows in trees like this beech as their homes or resting places (center). Beneath a portly beech tree lie porcupine-like pods which once contained triangular nuts (lower right); the tulip-shaped pods on the branches of this yellow poplar (or tulip tree) are last year's fruit (upper right).*



When the winter bares the trees, it permits investigation of their towering heights and their tiny secrets. Tucked away in the trees' attics, cluttered with clicking limbs, lie secrets about their age, history, characteristics, size and even their wildlife boarders.

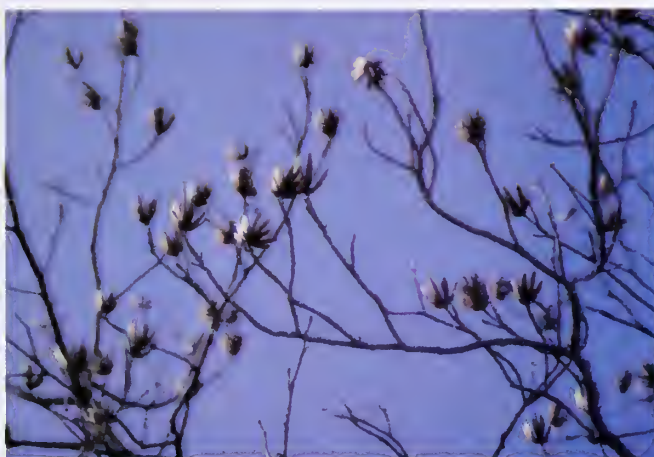
Jutting from sandy soil sprout several types of pines. Scanning up the giraffe-like neck of one of the pines, a loblolly, the sky-scraping trunk can be seen rising to almost full height without splitting. Brown-black chunks of bark speckle the neck-like trunk in lightly-packed layers up to two inches thick. The pine's tiny seed most likely blew here from the pine cones dotting the conifers on the edge of the meadow. The cones on some pines seem glued in place, looking like hundreds of black birds perched on the evergreens. The tall, lissome loblollies are especially beautiful. Bright green spiraling quills, six to nine inches long, spray its slouching limbs in clusters. Gently, groves of loblollies break the monotone grays of the forest. Their limbs will never be vacant of leaves as the deciduous trees of the winter forest are. New needles will come forth on the pine before old, yellowing quills drop off, evergreen. Many times,

the loblolly pine is chosen by a pair of bald eagles to support the large and lofty eyries that house their young.

Flexing its limbs, the beech tree tangles and screws its branches through the forest. Its low, dominating limbs cage in its mammoth trunk, which is wrapped in a smooth gray bark. One monstrous, full-grown beech tree seems to occupy more space in these woodlands than any other tree. Sometimes crumbled, once-oval leaves still rustle from its winter branches which have sprouted slender winter buds. Dispersed beneath the portly trees' broad shoulders lie porcupine-type pods. A hungry squirrel most likely consumed the triangular nuts the pods once contained. Squirrels, raccoons and others will use hollows in the beech and other trees for their homes, or just a day's rest.

Scabrous sweetgums stand in bottomlands and higher lands. Its scraggly bark has produced nodes, blisters and bunions swelling from the tree's tumorous trunk, leaving eerie expressions bulging from the wrinkled surface. Some prickly gum balls still swing from its branches, and some lie smashed beneath the tree. These are the sweetgum's fruit





which once contained tiny winged seeds. Corky stubble scurries over the gum's short, horizontal limbs. All in all, the sweetgum looks a bit shaggy. But the tree's bulges and elbows can come in handy for wildlife. Once in late winter, I saw a groundhog who had awakened too early and strayed too far from home, clinging high on a tree. Although unusual for a groundhog, it was his closest escape, and he did almost pass for just another bulge on an old gum tree.

Holly trees are scattered. Pretty grays slip over the holly's slender trunk, roughened by a few small growths. Rigid boughs are brightly decked with barbed and leathery ever-green leaves. Female hollies dangle bright red berries over the autumn and winter months. Some birds enjoy the small nutlets housed inside the berries. This area is fortunate to have such an ornamental tree garnish its forest.

The yellow-poplar, or tuliptree, also lives in these forests. The poplar's bark is streaked in gray, corrugated ridges. Sometimes a poplar is easy to recognize over the winter months because of the tulip-like pods (last year's fruit) that often perch the branches in its steeple. Its straight trunk is usually free of branch apparatus near the ground.

The dogwood is Virginia's state tree and flower. It is a small tree. Lingering in patches of sunlight, black, brown and gray ripples shinny up the dogwood's crooked trunk. Maroon forks and prongs tuck away its flowers and leaves in reddish boils and buds until spring. Sometimes small birds' nests are tucked between branches of lower trees and saplings. But the nests are easy to find only in winter when leaves are absent. Many secrets can be revealed during this time of year.

An important timber tree, the brawny white oak, is just one of the oaks that grow in this area. Its bark is thin, gray and scaly. Occasionally during the winter months, the white oak will still hang onto its round-lobed, dry leaves, and its pointed fruit, acorns, can frequently be found on the ground below.

Thanks to the baring winter, the colossal size, fascinating characteristics and tiny secrets of the trees that line this countryside can be fully enjoyed. For when spring comes, these secrets will be hidden once again by walls and walls of leaves. □





# River Bank Quarry

Fox squirrels represent a special treat for small game hunters in Virginia

## The Fox Squirrel

by Gerald Almy



It was December, and we probably shouldn't have been surprised by it. But when my hunting partner and I awoke to find a light coating of snow outside my Shenandoah Valley cabin we were taken aback.

The storm had come in swiftly during the night, blanketing the fallow fields and hardwood forests with a light dusting. Branches of trees leaned heavily under the white burden and the Massanutten Mountain rose regal and immaculate in the background.

Snow still fell lightly after breakfast as the truck rolled to a halt several miles upstream on the North Fork of the Shenandoah. Sliding the johnboat down the sharp embankment, we prepared for the drift.

Anchor, paddles, shotguns, ammo, life preservers, and camera were placed in the 12-foot camouflaged boat. With a crisp stroke of the paddle we were off, wrapped in the bosom of the snow-banked Shenandoah.

"Squirrel," came my partner's hushed whisper moments later.

Before I could spot the quarry, his 12-gauge bellowed. The sound died quickly in the damp morning air, and our first squirrel of the morning hit the turf.

Sculling hard in the winter-quickenened currents, I forced the bow into the bank and Joe pulled himself gingerly up the snow-clad slope to retrieve the morning's prize.

grays are streamlined and agile in appearance, foxes are squat and chunky, with rounded ears.

There are a number of subspecies of the fox squirrel (*Sciurus niger*) that may be encountered in Virginia. One of the rarest is the Delmarva fox squirrel, (*Sciurus niger cinereus*) which has been stocked on the Chincoteague National Wildlife Refuge in Accomack County. This squirrel is completely protected from hunting and has recently been placed on the endangered species list.

The northern fox squirrel (*Sciurus niger vulpinus*) is probably the most common fox squirrel in the state. Its colors are typically the same as those of the gray squirrel, with salt-and-pepper-gray fur and a silvery, fluffy tail.

The western subspecies (*Sciurus niger rufiventer*) has a bright rust-orange belly, legs, face, and tail. Some integration has taken place in the western sections of the state between this and the northern subspecies.

The southern fox squirrel (*Sciurus niger niger*) is strikingly colored. Its face, stomach, and the insides of its legs are jet black; the rest of the body is gray. These are rare, possibly non-existent in Virginia today, though northern fox squirrels with similar colors may occasionally be encountered. Northern fox squirrels with black fur are an example of melanism, which means the animal contains high concentrations of black pigment.



*"Floating rivers has proven very productive. Sciurus niger seems to have a strong liking for the tall sycamores, oaks, and hickories that grow along many of the rivers coursing through the western part of our state."*

His smile was wide as he made his way back to the boat, and I immediately suspected the reason: our first harvest of the day was an exquisite fox squirrel. It was a large, grizzled old-timer with bright orange tail, face, stomach, and inner legs.

While not exactly rare, fox squirrels represent a special treat for most small game hunters in Virginia. Many nimrods with dozens of hunting seasons under their belt have never bagged one of these large squirrels.

Statewide, an estimated 37,554 hunters pursued the fox squirrel during the 1974-75 season. A total 114,508 fox squirrels were bagged by these hunters. This may sound like a lot, but compared with the 288,731 people who went after grays, harvesting some 2,539,940 animals, fox squirrels represent a mere drop in the bucket of bushytail hunters.

For those who've never seen one, a fox squirrel looks quite similar to a gray, but with some notable differences. First of all, they're bigger. Grays weigh about a pound and measure 19 inches. Foxes may weigh two or two and a half pounds and, including their tail, stretch over two feet long. Where

In Virginia, the western part of the state is the fox squirrel's stronghold. Mr. C. O. Handley, Jr., mammologist at the Smithsonian Institute, believes fox squirrel populations have increased in this section of the Old Dominion in recent years.

Only five counties west of the Blue Ridge reported no fox squirrel populations during a recent survey. Most had anywhere from five to 180 colonies, with an average of 35 animals per colony. The typical harvest in this area is 160 animals per year in each county.

East of the Blue Ridge, the prospects for finding fox squirrels are rather bleak. A Game Commission report found, "It cannot be stated with complete certainty that any fox squirrels remain east of the Blue Ridge Mountains south of Loudoun and Fairfax counties."

For those who want to try hunting this big, tasty squirrel, a bit of research is the first item on the agenda. The map below shows the 19 counties in Virginia that are estimated to have over 100 fox squirrel colonies present. These represent the best choice for hunting.

When you've located squirrels in one of these counties,



three common hunting methods are open to you — still hunting, stalking, and floating rivers. For “foxes” I prefer the latter two.

Floating rivers has proven very productive. *Sciurus niger* seems to have a strong liking for the tall sycamores, oaks, and hickories that grow along many of the rivers coursing through the western part of our state. Floating allows you to drift without noise or movement into shotgun range of the quarry. This circumvents the animal's two major lines of defense — sight and hearing.

Both johnboats and canoes can be used for this sport, but the latter should be avoided unless you're an experienced canoeist. Painting large blotches on the craft with flat finish spray paints helps you to approach within sure gunning range of the quarry.

An anchor is vital to successful float hunting. Many fox squirrels will pop their heads out for a split second and dart out of view before you can get a shot off. By anchoring and sitting patiently you can often wait out these rascals.

The only major drawback of float hunting squirrels is that you must gain permission from landowners to shoot

Prime conditions for stalking occur when the ground is damp after a light rain has fallen or a heavy dew has settled on the earth. Noise from crackling leaves is cut down immensely at this time, and you can slink silently through the moist bed of leaves, like a cat tracking prey.

Fox squirrels reveal their presence in a number of ways — all of which you should be alert for. Some that are easy to spot will be seen running on the ground or climbing and jumping through the trees. These are simple to detect, but pose tricky shots as they leap for safety.

Other squirrels will have spotted you before you approach within gun range. These will often freeze, relying on their camouflage to protect them. It takes sharp eyes and strong determination to see them. Look for odd humps in the forks of trees or a fluffy tail hanging loose from a branch.

Quite a few of the squirrels encountered will probably alert you by sound, rather than sight. Rustling leaves on the ground and branches shaking high in the treetops are two examples. Some squirrels also bark angrily if you venture into their territory. The classic squirrel sound, however, is made by the cutting animals as they chew into the tough

*“The efficacy of the float hunting method was proven one snowy December morning. In a half-day float we bagged four squirrels.”*



game spotted from the boat. You can't do this when you're floating down the river, so it takes some advance reconnoitering to locate the owners. If you find a stretch of river floating through public hunting lands this problem can be avoided.

The efficacy of the float hunting method was proven vividly on the trip my partner and I took that snowy December morning. Before the half-day float was over we'd bagged four handsome fox squirrels. Two were integrated western-northern squirrels with bright orange tails. One that Joe plucked from high in a sycamore with his full-choked 12 gauge was a northern specimen with typical gray-squirrel colors. The most unusual member of the quartet was a melanistic version of the northern squirrel. This animal had jet black belly, face, and legs; his back and tail were gray.

Stalking is the second method I use for fox squirrels. The technique here is similar to that of the deer hunter who walks as silently as possible through the woods, pausing frequently to scan the habitat for his quarry. A slow, halting pace is necessary for best results.

husk of nuts. Hearing the woods come alive with the sound of cutting squirrels is one of the greatest joys of this sport. The gentle pitter patter of shell fragments dropping to the ground can also alert the perceptive hunter to the presence of his quarry.

For both stalking and floating rivers, shotguns are the best firearm. High brass No. 5 or 6 shells and modified choke makes a good combination for the tough-skinned fox squirrels. In doubles, improved and modified makes for a telling one-two punch.

The flavor of fox squirrel meat is very similar to that of the gray, but is often more moist and tender. For a simple but tasty meal, cut the squirrels into four to six sections, wash thoroughly, and brown in hot oil with onions. Sprinkle on soy sauce, Worcestershire sauce, add about half a cup of water and a bay leaf. Cook over low heat for  $\frac{3}{4}$  to  $1\frac{1}{4}$  hours in a covered skillet, adding water if necessary. Just before serving add a can of mushroom soup and a few tablespoons of sherry. Served with rice and a vegetable, this makes for a filling and tasty meal. □



# Growing Up Outdoors

by Sarah Bartenstein



Leonard Lee Rue III

## Why do animals do what they do?

### Wintering Wildlife

When it gets colder outdoors, what do you do? You wear different clothing. You might do more things indoors where it's warm, you participate in different sports: it would be pretty difficult to play softball in the snow or swim in a frozen lake, but you couldn't ski on a grassy hill or skate on a warm lake, could you? And you eat different foods: somehow, a bowl of hot chili or a cup of hot chocolate tastes better when it's cold outside! Maybe you help your parents do things like put up storm windows or chop wood to keep your family warm during the chilly months to come.

As the days grow shorter and the temperatures get lower and lower, animals also make preparations for winter. Food and cover are the major concerns for all animals, but different species cope with the cold in different ways.

Many birds migrate to warmer environments, although there are some hardy birds that can take the cold, like the chickadee or the titmouse. Sometimes bats migrate, too, but those that don't spend the winter in warm mine shafts and caves, or in the natural splits or fissures in rocks. Beavers and muskrats store food under the ice that covers their homes. Squirrels store food, too.

The woodchuck hibernates in winter; it is the only animal in Virginia that does. It goes into such a deep sleep that it cannot be awakened until spring. If you were to touch a hibernating animal, it would feel cold, since its body temperature drops to that of its surroundings. The woodchuck can go through its entire winter hibernation without eating. That's one way that animals adapt to a shortage of food.

Another, more common way, however, is practiced by animals such as the bear, the raccoon and the skunk. Rather than hibernating, these animals eat and eat and eat during the weeks before the onset of winter. By the time the cold weather comes and food has become very scarce, they have built up enough fat to keep them alive until spring. They go into a deep sleep, too, but it is different from hibernation. When the bear sleeps, its heartbeat and breathing remain

normal, or close to normal; its body temperature is normal, too, and if you were to touch a bear or raccoon in this sleeping state, it might even feel hot to the touch. Although bears usually burrow dens for themselves to sleep in during winter, sometimes they are exposed to the weather; but this still does not seem to lower their body temperature. As a matter of fact, bears have been known to sleep through snowfalls, and the snow melts as soon as it touches the bear's hot body! The combination of the increased layer of fat on the animal's body and the decreased activity keeps bears, skunks, and raccoons alive during the winter months when food is hard to find. Although they still move around during this time, they are less active than during other times of the year. Since their body functions remain basically the same even when they are sleeping, you could stir one of these animals awake, whereas you could not awaken a hibernating animal. As a matter of fact, if you observe a hibernating woodchuck, you might think it was dead, but it is just "waiting out" the most difficult of seasons.

Rabbits cannot avoid eating, nor do they sleep for long periods of time. One thing does help the rabbit get through the winter, though: it is able to "fast" or go without food for a week. Cover is even more important than food at this time. This is because, if the rabbit can find a place that will protect it from the wind (which lowers the temperature even more), it can stay warm and needs less food as a result. Your body "burns up" less food if you are warm. Think about how you feel when you've put in a full day of sledding on a snowy hill; compare that to the way you feel after a softball game on a hot day. You're likely to be a little hungrier after the sledding!

We humans are fortunate: we can put up food in cans and preserve it in freezers so that, even when the harvest is over and the earth is barren, we are fed. And we can burn fuel oil or electricity or wood to keep our homes cozy and warm. Animals have to make other arrangements, but then, they're very adaptable creatures, aren't they? □

# Gluttonous Game Fish

## Will these "eat-anything" super predators ruin your bass fishing?

by Jack Randolph and Larry Hart

The rhythm of a good fly fishermen is a beauty to behold, particularly at sundown on a glass-calm lake. The easy movements and the sinuous flight of the line blend easily into the melody in the air as day slips into night.

The angler glides leisurely along the shoreline in his canoe. The small bream bug connected to the line by an invisible length of leader is dispatched to investigate every nook and cranny where a big bluegill may be waiting for a bedtime snack.

The bug lands between two lily pads and almost instantly it disappears, inhaled by an anxious bluegill. The rod bows in a gentle arc as the fish cuts tiny circles, frantically fighting for its life. Patiently, the angler plays the determined fish, holding the spare line in his left hand. Even this action seems to blend into the mood of the evening calm which is, without warning, shattered as a great boil erupts around the little bluegill! The line is jerked from the angler's hand and his reel shrieks in surprise as the tip of the straining fly rod dips dangerously down into the water!

Grabbing for his reel handle, the fishermen grimaces in pain as the handles crack his knuckles. The line quickly disappears from the reel spool before the big fish's surging run. The fisherman raises his rod, hoping to turn the monster, but there is simply too much fish and not enough line. At line's end the fragile leader parts, leaving the fisherman shaking in his boat. At that moment no power on Earth could convince him that the big striped bass that took his bream and broke his line wasn't preying on bluegills along the shore!

No one could deny that the striper had taken the bluegill, but folks who have spent a great deal of time observing fish know that when any fish is hooked it sends out distress signals that may attract larger predators. Just as a sick or injured rabbit attracts foxes, a little fish in trouble attracts bigger ones.

Some years ago, while fishing for shad on the Rappahannock near Fredericksburg at the power house, we could see lots of shad moving about in the clear, relatively calm water, but not one would hit the pair of shad darts we were casting. Finally, a little white perch became too curious and grabbed a dart. As the little fish struggled and sent vibrations through the water, every fish in sight became interested and

tried to grab the perch or the other shad dart. Finally, a small striper grabbed the dart and we landed the pair.

Most fishing lure manufacturers are aware that distressed and frantic fish send out certain vibrations that attract other fish. A great deal of time and money has been spent trying to develop artificial lures capable of making the same vibrations.

Incidents such as the one above have led some anglers to believe that stripers and muskies compete with bass, pickerel and other game fish. Biologists across the United States have studied the concept but have found nothing to indicate competition. In fact, in some cases the big predators are beneficial to the smaller ones.

Since striped bass have been introduced into many large impoundments in Virginia, anglers can legitimately ask, what do they eat?

A recent food habits study in Oklahoma's Keystone Reservoir revealed that gizzard shad is the primary striped bass chow. Approximately 300 striper stomachs were examined over a three-year period. Minnows and shad accounted for 91.8 percent of the diet, with the gizzard shad accounting for 83.4 percent. The remaining 8.2 percent consisted of a mixture of pan and rough fish.

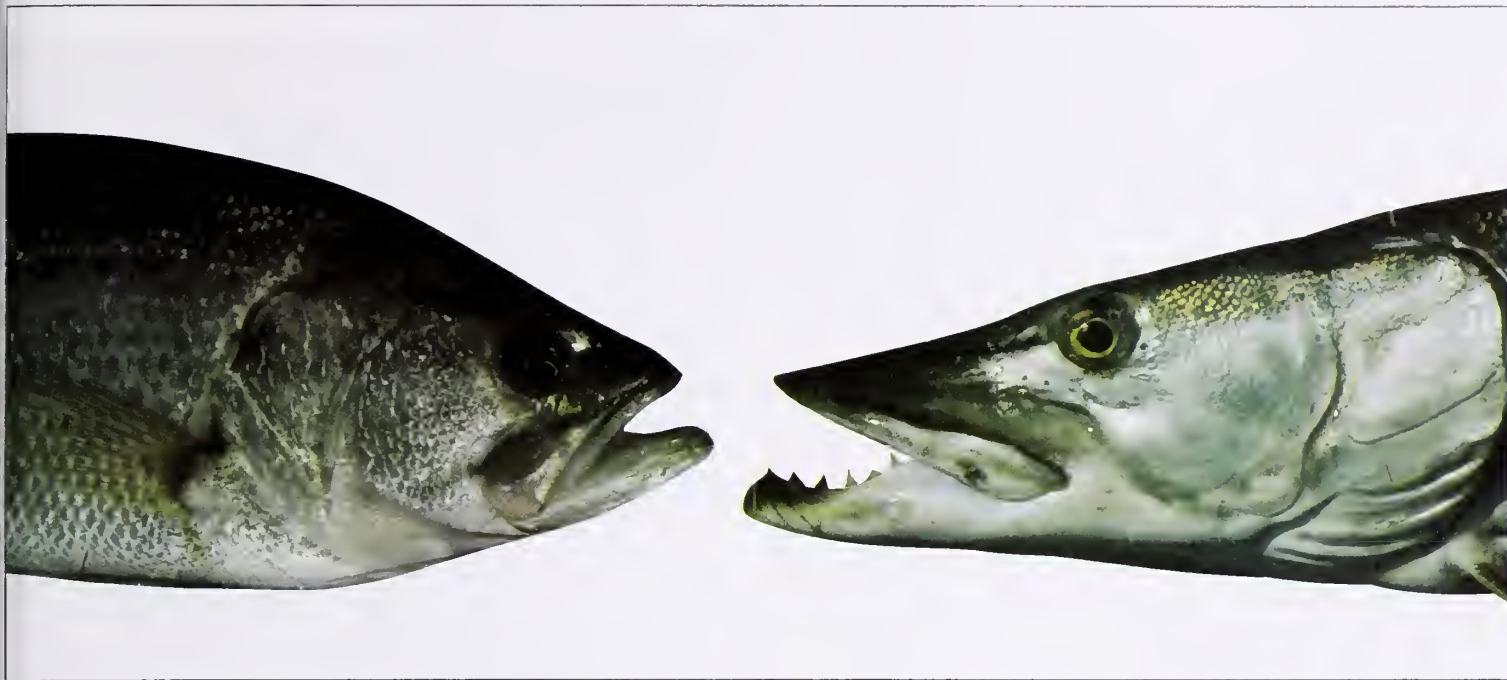
A similar study, conducted in Smith Mountain Lake in Virginia, in which 106 striped bass stomachs were examined, forage fish made up all of the fish found. Only two stomachs contained something besides forage fish. One had two crawfish and the other had a third of a Mann's Jelly Worm, flavor unknown.

Not only do these studies show that the stripers aren't eating the bass but they also reveal that there is very little competition between stripers and other fish for food. More on this later.

If shad satisfies the appetites of stripers, what about muskies? Studies from Kentucky to Canada, conducted over a number of years, reveal that muskies in rivers prefer suckers. A big musky will stake out a piece of river and run off all smaller muskies to protect its sucker supply. This habit prevents rivers from being overrun with muskies. Inasmuch as our rivers are very wealthy in terms of suckers, the musky stocking program in our rivers is simply a way of converting pounds of under-utilized suckers into pounds of

VIRGINIA WILDLIFE





the highly-prized fighters that anglers seek, muskellunge!

In lakes, the musky is also a good neighbor. Studies have shown that muskies are pretty smart. They are not keen on eating fish with sharp fins. They'll eat them in a pinch, but their favorite fare includes soft rayed fish such as shad, carp, suckers and various minnows. Happily, there are five to 15 times as many soft rayed fish in our reservoirs as spiny rayed fish.

All fish are opportunistic, and they'll take a meal when they can find it. Both stripers and muskies have been known to eat crappie, bass, walleye, and each other. For dessert they are apt to eat rats, muskrats, ducks, can openers and even rocks! Yet, for every striper or musky that eats a bass or crappie, there is probably a bass or crappie that eats a small striper or musky. The point is that muskies and stripers would rather eat something besides the popular game fish of interest to sportsmen and they usually do.

What about striped bass and muskellunge competing for food with our native bass and pickerel? If all the stripers and muskies were to vanish would bass and pickerel fishing improve? The facts say, no.

It is becoming increasingly apparent in reservoir management that it is difficult to stock enough predators to severely tax the food supply. Texas is conducting a study in which they are deliberately attempting to overstock a lake with predators. In addition to familiar species, they have introduced such species as the voracious peacock bass from South America and the Nile perch which grows to tremendous size in Africa. Despite efforts to do so, Texas officials do not believe they have stocked enough predators to diminish the food supply. So much for Texas; what about Virginia?

Most of Virginia's reservoirs have at least 300 pounds of forage fish per acre, with many having as much as 500 pounds of forage fish per acre. A fast growing predator will eat fish amounting to two percent of its body weight per day. At this rate, 300 pounds of forage fish would support 1,500 pounds of predators for one day. Considering the vast reproductive capabilities of forage fish, this same 300 pounds could support more than 60 or 70 pounds of predators for a year, yet most fishery managers are pleased when they can produce 10 to 20 pounds of harvestable predators

per acre per year. These numbers show that competition between muskies and stripers and native species is not an area of concern. In fact, introduction of stripers and muskies can improve the food supply available to native predators!

In older reservoirs, gizzard shad, the most common forage fish, grows to a size too large to be eaten by bass, pickerel and other native predatory fish. As with most animals, when a population consists of crowded adults, the reproductive rate declines. Poor reproduction results in fewer smaller shad for bass, crappie, pickerel and other native species. When big predators such as muskies and stripers are introduced, the adult shad are thinned out and the reproduction rate increases, resulting in more small shad for the smaller predators. We witnessed an example of this at Smith Mountain Lake in Virginia.

In 1973, the standing crop of large adult gizzard shad was 1583 pounds per acre and small gizzard shad amounted to only three pounds per acre. By 1975, adult striped bass had reduced the adult gizzard shad population to 182 pounds per acre and the young shad had increased over 500 percent to 16 pounds per acre! Of course, fishing in 1975 showed a substantial improvement over fishing in 1973 at Smith Mountain Lake.

From an angler's point of view, both species add acres and acres of fishable waters to any reservoir. For most practical purposes, bass fishing drops off in waters deeper than twenty-five feet. If bass and pickerel were the only game species present, anglers would largely ignore the deeper waters. This has now changed. The entire lake is productive. On occasion, the free-swimming schools of young shad entice the bass and other species away from their lairs to join in mid-lake fishing sprees. The muskies and the stripers contribute towards keeping the shad young and viable and all species benefit.

Don't worry about the stripers and the muskies eating up your bass. You might just as well spend your time worrying if those boll weevils are going to drink up all of your cotton gin. □

Jack Randolph is deputy assistant director of the Commission of Game and Inland Fisheries; Larry Hart is chief of the Commission's Lands and Engineering Division.

# Birds of the Winter Marsh

## A Photo Essay

Eastern coastal marshes are the main wintering grounds of the hardy, wary black duck (center).

The little ruddy duck or "stiff-tail" undergoes a plumage change from chestnut brown in spring to a brownish-gray in winter (below center).

A song sparrow comes out to warm itself on a cold day (below, left).

The common egret uses its stiletto-shaped bill to catch fish with lightning stabs (far right).

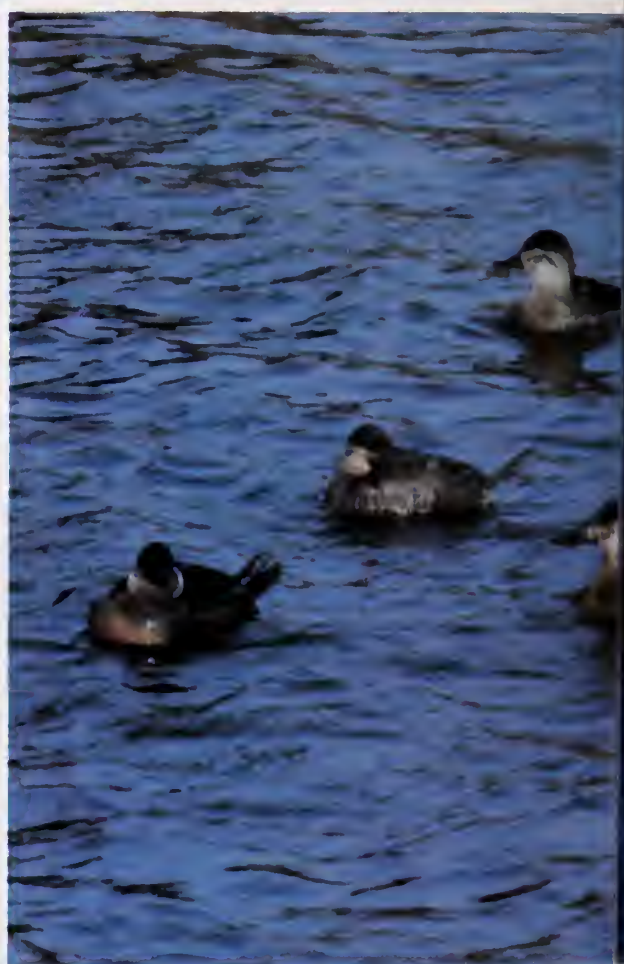
The mallard is a common resident of the winter marsh (below far right).



Steve Knuth



Steve Knuth



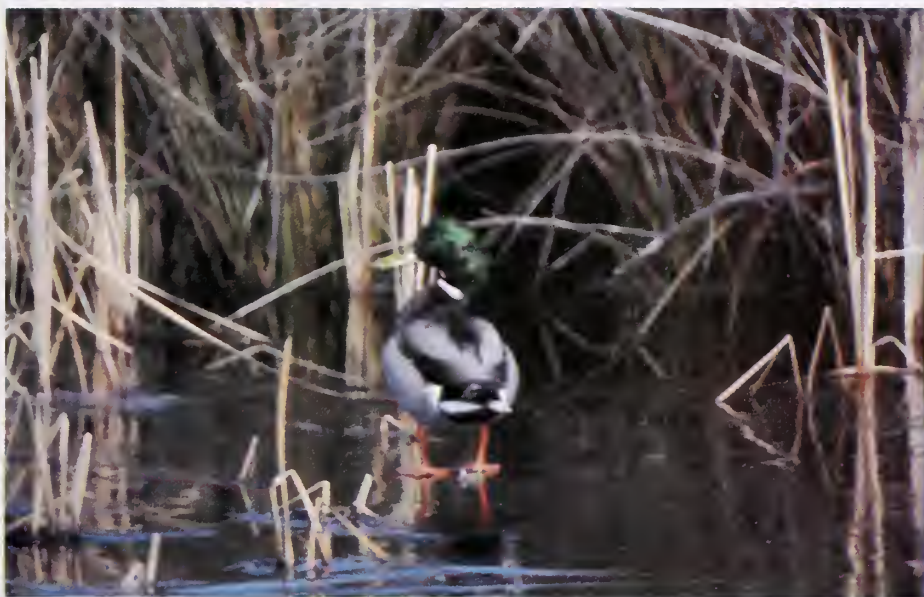




Curtis Badger



Curtis Badger



Spike Knuth





Spike Knuth

The strip of white that runs the length of the willet's wing is a good field mark for this common shorebird (left). Greater snow geese grub out roots of marsh vegetation, often digging out round, shallow potholes in the marsh (left center).

Coots, often called blue peters or mudhens, scurry over a skim of ice as they hasten to open water (bottom).

The great blue heron will often stand perfectly still for many minutes as it stalks fish or frogs (below).



Chris Burger



Spike Knuth



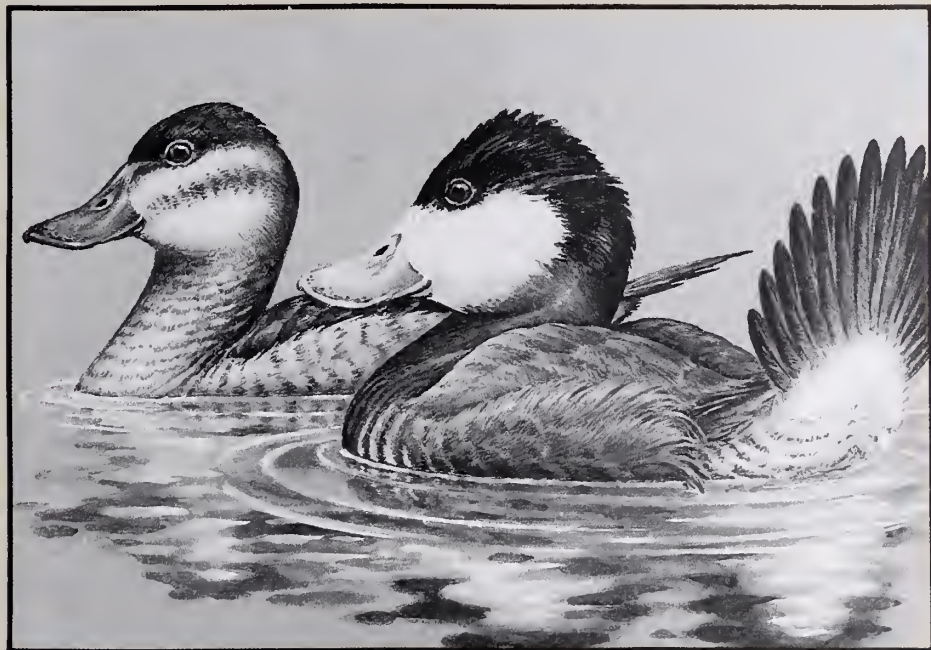
Spike Knuth



# Outdoor Notebook

## Big Bass Catch

Henry B. Lillard, 83, with his 9 pound, 14 ounce bass. His daughter Gertrude Poling notes, "Maybe fishing should be recommended for senior citizens — my dad forgot all about his arthritic arms as he struggled for 20 minutes with this fish. My son-in-law had never seen anything so big — he tied the fish to a tree so he couldn't go back in the water."



## Duck Stamp Winner

John S. Wilson of Watertown, South Dakota is the winner of the 1980 Duck Stamp Art Contest held by the Department of the Interior's Fish and Wildlife Service. Wilson's ruddy ducks were chosen from field of 1,507 entries submitted by artists from across the country.

The 1980 contest marks the 31st time that artwork has been selected in an annual competition for use in designing the Duck Stamp. Until 1949, wildlife artists were commissioned to provide the design for the stamp.

Judges for the 1980 contest were: Dr. Frank Bellrose, Illinois Natural History Survey, author of *Ducks, Geese and Swans of North America*; Mr. Charles Cadieux, representing the Outdoor Writers of America; Billy Joe Cross, former Commissioner of the Mississippi Game Commission and now Regional Supervisor for Ducks Unlimited; Cindy Dickson Conner, editor of *Waterfowl World*; and Mr. Hugh Galbreath, manager of

Remington Farms Game Management Area in Maryland.

Funds from Duck Stamp sales are used by the Fish and Wildlife Service to acquire land for waterfowl production areas and refuges. More than 75 million Duck Stamps have been sold since 1934. To select each year's design, the Fish and Wildlife service conducts the annual contest which is open to all interested artists for the following year's Duck Stamp. Details on the contest are announced in mid-summer and all entries must be postmarked not later than October 15th of that year. Rules for the contest are available from the Public Affairs Office of the U.S. Fish and Wildlife Service in Washington, D.C.

The record number of entries in the 1980 contest represents the third year in a row in which increased interest has been evidenced by the growing number of participating artists. □

## Wanted: Otters, Bobcats!

Otter and bobcat carcasses are needed for research projects being conducted at V.P.I. The object is to learn something of the population trends of these two species by studying the ages and reproductive status of animals harvested, in addition to comparing harvest figures for several years.

Trappers and hunters who take otters and bobcats are urged to donate the carcasses after skinning and supply some information with the body. The information desired is your name and address, the date and location of the kill and the sex of the animal.

If possible, the carcasses should be placed in a plastic bag and kept frozen. The data can be written on a piece of paper (in pencil, since ink will blur when it is wet) and placed in the bag.

Pickup can be arranged by contacting one of the following people:

Piedmont Area: J. V. Gwynn,  
(804) 296-4731

Tidewater Area: Fairfax Settle,  
(804) 443-2810

Mountain Area: Dick Drinkwater  
(703) 961-5320 (O); (703) 552-1233 (H) If the person in your area cannot be reached, try contacting your local game warden.

In the case of bobcats being mounted by taxidermists, please call one of these people and let him know where the job is being done so that the taxidermist can be contacted.

Donors receive \$2 for otter and \$3 for bobcat to defray the cost of phone calls. □



## 'Granddad, what's a trout?'



Will you be able to take your grandchildren trout fishing a few years from now? **YES**—if you join the fight to save America's trout streams by becoming a member of Trout Unlimited, an international, nonprofit conservation organization.

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Contributions over \$2.50 are tax deductible.



## Tiller's Bird Feeder

This unique bird feeder is produced in Glen Allen by B. C. Tiller, Sr. Its main components are two removable glass jars. The jars are ordinary mayonnaise containers and can be taken out of the hanging metal container for refilling or cleaning. Mr. Tiller is selling his patented bird feeder for \$9.45 postpaid. Profits from the sale of these feeders go to the Crippled Children's Hospital in Richmond. You may order feeders from B. C. Tiller, Rt. 3, Box 47, Glen Allen, Virginia 23060. □

## Colonel's Commentary The Landowner As Hunter

Frequently we are asked about the laws relating to landowners taking big game on their property. Few possessions are more treasured than one's own land, and on it the fewer laws by which the landowner is regulated, the greater is his feeling of security. He is not required by law to have a license on his own land. However, while he is free of that requirement, he must abide by the season and the bag limit. Also, he must check his deer at a local checking station. Here is the source of confusion. How can he tag and check a deer when he has no license from which the big game tag is removed and attached to the animal? On the bottom of the check station's transportation card is the word "landowner." The tagless deer must be taken to the check station where the operator inspects the deer and then circles "landowner" on the card. Once this card is firmly attached at the station, the landowner may return to his "castle" with his prize. □

Colonel's Commentary is a new feature of Virginia Wildlife. Each month in the *Outdoor Notebook* pages, the Game Commission's chief of Law Enforcement, Colonel John McLaughlin, and his staff will comment on the various game and fish regulations that affect you. If you have questions about a particular regulation, address them to Virginia Wildlife, c/o Colonel's Commentary, P.O. Box 11104, Richmond, Virginia 23230.

VIRGINIA WILDLIFE

## Alaska Lands Bill

The enormity of the territory involved in the recently-passed (November 1980) Alaska Lands Bill boggles the mind when compared to Virginia standards. The bill doubles the size of the national park system by adding 43.5 million acres of Alaska parks to the system. Consider that the entire Commonwealth of Virginia contains only 25 million acres.

Virginia's largest federal wildlife refuge at Back Bay encompasses some 9,000 acres. Contrast this with Alaska's new Yukon Delta National Wildlife Refuge, 13.4 million acres. And this is only a portion of 53.7 million acres selected as wildlife refuges.

The bill has also succeeded in dramatically enlarging the National Wilderness Preservation System by designating 56.4 million acres of wilderness in national parks, national wildlife refuges and national forests.

Also included in this act is the naming of 13 rivers to the National Wild and Scenic Rivers system.

Some conservationists, especially those who would "lock up" every available acre of public land, are not entirely satisfied with the bill and plan to continue to fight for "protection" of remaining Alaska lands. □



# Feast On Waterfowl

BY JOAN CONE

For waterfowl fanatics, the gang that happily arises at 3 a.m., gulps steaming coffee, then heads for hours of freezing in a cold, wet, windswept blind, this is the finest season of the entire year.

The time it all pays off for the entire family is when those ducks and geese which decoy to your rig arrive at the dinner table.

An important step toward a wonderful duck or goose dinner is to dress the birds as soon as possible. Be sure to keep hearts and livers and stow them in a cooler or ice chest. Always wash waterfowl thoroughly, removing as much blood as possible. When freezing, be sure birds are double-wrapped in air-tight packages, as freezer burn can ruin your game.

## MENU

Wild Waterfowl Orange  
Carrot-Rice Bake  
Heavenly Molded Salad  
Caramel Custard

## WILD WATERFOWL ORANGE (DUCKS OR GOOSE)

2 large ducks (mallards or equivalent) or 1 large goose

- 1 package (¾ ounce) brown gravy mix
- ¼ cup flour
- 1½ teaspoon salt
- 1 cup hot water
- 2 tablespoons orange marmalade
- 1 can (6 ounces) frozen orange juice concentrate, thawed

Combine all ingredients except waterfowl and pour into a large (14" x 20") oven cooking bag. Place your bag in a 2" deep roasting pan. If birds are fatty, prick skin with a fork. Add fowl to bag, turning back to moisten all sides. Close bag loosely with twist tie about 2" from ducks. Make 6 ½-inch slits in top of bag. Then roast in a 375° F. oven for 1½ to 2 hours for ducks or 2½ hours for geese or until they test tender. Pour sauce in bowl and after skimming off excess fat, your gravy is ready to serve.

Allow ½ duck per serving.

## CARROT-RICE BAKE

- 3 cups shredded carrots
- 3 cups cooked rice
- 1½ cups shredded cheddar cheese
- ½ cup milk
- 2 beaten eggs
- 2 tablespoons chopped onion
- 1 teaspoon salt
- ¼ teaspoon pepper
- ½ cup shredded cheddar cheese

Combine carrots, rice, 1½ cups cheese, milk and eggs. Stir in onion, salt and pepper. Pour mixture into a greased 9" x 13" baking dish. Sprinkle remaining ½ cup cheese on top. Bake in a 375° F. oven for 40 to 50 minutes. This dish can be baked along with the waterfowl.

Makes 6 servings.

## HEAVENLY MOLDED SALAD

- 1 can (1 pound) crushed pineapple
- 1 package (3 ounces) lime gelatin
- 1 package (8 ounces) cream cheese
- ½ pint half-and-half cream
- ½ cup chopped nuts

Drain crushed pineapple and reserve liquid. Add enough water to pineapple juice to make 2 cups. Bring liquid to boil and stir in lime gelatin. Put aside to cool. Beat cream cheese with half-and-half cream. Add pineapple, cream cheese mixture and nuts to slightly-thickened gelatin. Pour into a 7½" x 2" x 12" dish. Place in refrigerator until firm. This may be made a day ahead of use. Makes 12 servings.

## CARAMEL CUSTARD

- ½ cup granulated sugar
- 3 eggs
- 3 tablespoons sugar
- 2 cups milk, scalded
- 1 teaspoon vanilla

Melt ½ cup sugar in a two-quart pyrex dish over very low heat. Spread caramel evenly over bottom of dish and ½-inch up sides. Put aside to cool. In a large bowl, beat 3 eggs with 3 tablespoons sugar until light and fluffy. Slowly add scalded milk and when well-blended, add vanilla. Pour mixture over caramel in pyrex dish. Place baking dish in a pan of water with 5 or 6 layers of paper toweling under dish (this keeps caramel syrup liquid). Bake in a 325° F. oven about 45 minutes or until custard is set. Custard is done when knife comes out clean at side of dish.

Makes 6 servings. □

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# On the Waterfront

Edited by Capt. James N. Kerrick

## Did You Know?

In spite of fuel jitters and economic uncertainty, retail spending on boating increased 10 percent in 1979, according to the National Marine Manufacturers Association.

In its year-end statistical report, "Boating '79," the association estimated retail expenditures of approximately \$7.5 billion for boats, motors, accessories, used boating equipment, fuel, insurance, repair, slip fees and other services.

The report estimates that 58 million Americans boated at least once on the more than 11.6 million boating fleet. The recreational boating fleet numbered 8.8 10 years ago.

"Boating '79" breaks out the fleet as follows:

6,700,000 outboard boats

1,284,000 inboard boats, including auxiliary powered sailboats

904,000 sailboats without auxiliary power

1,200,000 canoes

1,537,000 rowboats

In addition, Americans own approximately 4.17 million boat trailers. The average length of an outboard purchased in 1979 increased to 16.3 feet. The average length in 1978 was 15.1 feet.

More than 60 percent of all boats registered are under 16 feet in length which provides the type of recreation that the average American enjoys.

## Tough USCG Head Policy Announced

After months of leniency and looking the other way, the U.S. Coast Guard has decided to increase its boardings of recreational vessels to check for compliance with marine sanitation device (MSD) regulations. A new twist to the Coast Guard safety inspection is being announced — boats are to be boarded at dockside.

The "get tough" policy was prompted by what Coast Guard officials believe to be a low rate of compliance by the boating public with the MSD regulations. Of the estimated 1.2 million boats with heads, a Coast Guard official monitoring the enforcement effort estimates that only ten percent of these boats are in compliance.

Federally-approved heads are of a Type I (flow-through treatment) or Type III (holding tank) variety. Many boatmen have simply elected to switch to portable devices which are legal, but are not covered by the federal MSD regulations. Coast Guard officials say all CG units are being alerted and will contribute manpower to this beefed-up effort on an "as available" basis.

How extensively the USCG can carry out this new enforcement policy is questionable. It is well known that the Coast Guard is operating within severe manpower and budgetary limitations. In order to fully police this regulation, CG personnel would probably have to be diverted from other functions.

Initially reluctant to enforce the letter of the law, (the MSD regs went into effect January 30, 1980), the Coast Guard announced it was seeking a "good faith" effort by the boating public in complying with the regulations. According to a November 1979 USCG directive, boats would not be boarded solely to check on head compliance. Rather, a head check would be made only in the course of a routine boating safety inspection.

Officials explain this leniency was permitted because of widespread confusion of the law, and because some boating groups had threatened to challenge the regulations in the courts. However, these groups recently decided not to pursue a lawsuit when they were advised the chances of its success were extremely doubtful, and that it would cost hundreds of thousands of dollars and take years for the issue to be resolved.

Since the regulations went into effect, boatmen with MSD purchase orders have been given added time to comply, and many violators have received simple warnings. Even after a citation was issued, the goal of hearing officers was to bring the vessel into compliance with the regulations, and not necessarily assess fines. In fact, according to a USCG directive, "If the deficiency is corrected. . . then the hearing officer may remit the penalty and issue a letter of warning instead."

As of mid-July, seventy MSD violations were given to hearing officers. However, says a Coast Guard official, "there will be no more warnings anymore." He added, "Purchase orders are no longer going to wash as a good faith effort." The maximum civil penalty for violating the MSD regulation is \$2,000.

To supplement their efforts, the Boat Guard is seeking cooperative agreements with state governments to allow state officers to cite violators. Although no state has as yet taken them up on this offer, the Coast Guard says six or seven states have expressed interest.

For additional information contact The Office of Boating Safety, 5th U.S. Coast Guard District, Federal Building, 431 Crawford Street, Portsmouth, Virginia 23705, (804) 398-6202. □

*Courtesy Boat Owners Association, October 1980.*





# In Nature's Garden



David H. Askegaard

## The Trailing Arbutus

BY JOANNE H. SULAK

Though rarely seen, the trailing arbutus is not a rare plant. Its evergreen foliage graces forest slopes that are generally off the beaten path or hidden by layers of last year's leaves. The shell-pink flower laden with a rich, spicy fragrance appears in late March or early April, often before the snow has melted.

The Pilgrims had a special love for trailing arbutus. It was the first flower to greet them during their first spring in America. They called it mayflower, perhaps in affectionate memory of both their ship and a familiar plant from their homeland, the hawthorn, which is known throughout England as mayflower, or may.

*Arbutus* is the Latin name for the strawberry tree of Europe. Our trailing arbutus, a native of the northeastern United States and Canada, belongs to the same family as the strawberry tree, the Heaths or *Ericaceae*. Both of these plants produce evergreen leaves and pinkish-white blossoms. This connection with the strawberry tree is thus the probable origin of the common name for our native trailing arbutus. The scientific name is *Epigaea repens*. It combines the Greek *epi*, "upon" and *gaea*, "earth" with the Latin for "creeping," *repens*. The result is an accurate description of the plant's natural growth habit: creeping on the ground.

Look for the mayflower in shady woodlands with light, sandy soil. The plants prefer good drainage and are, consequently, often found growing on slopes. Another prime requirement for good growth is highly acidic soil. For this reason, arbutus frequently grows under or near evergreens.

The creeping vines of trailing arbutus are covered with rusty-colored hairs and often form extensive mats of vegetation. The oval leaves are thick, cordate at their bases, and arranged alternately along the stem. The flowers are tubular

with five lobes and colored delicate shades from rose to nearly white. The beauty of these blossoms is exceeded only by their fragrance, a sweet, earthy aroma that can often be detected long before visually locating its flower source. After the flowers have faded, small, round seed pods will form in clusters of three or more. They are mature when approximately "pea" size but are soon devoured by birds and chipmunks as well as ants and other insects.

As a harbinger of spring, trailing arbutus has evoked both verse and folk lore. An Iroquois legend tells of a beautiful young maiden who was able to green the earth, make the birds sing, and create soft and pleasant breezes. She took blossoms of trailing arbutus, kissed them, and put them under her feet. As she walked over the countryside, her footsteps were marked with trailing arbutus plants, and there they grow today.

Children in colonial New England gathered decorative garlands of mayflowers to peddle on the city streets, particularly in Boston. The fragrant corollas were also reportedly eaten as a pleasant treat to relieve thirst. And the beauties of the flowers have been heralded in the writings of Henry David Thoreau, John Burroughs, and perhaps most famously by John Greenleaf Whittier in several poems. From "The Mayflower," he writes:

Yet, "God be praised!" the Pilgrim said,  
Who saw the blossoms peer  
Above the brown leaves, dry and dead,  
"Behold our Mayflower here!"

With a little patience and scouting in likely spots we, too, can behold the beauty of the trailing arbutus in the Virginia woodlands. And lucky we are to have such a lovely indicator of impending spring. □





KNUTH



# The Peregrine Falcon

Birds of prey have, for some time, been both admired and resented by man. Hawks, especially, have interested and inspired him. They were among the many creatures that were once deified. Horus, an ancient Egyptian king, considered a god, was pictured as a falcon. "Horus" meant "lofty one," an appropriate name for a falcon, sky god or king. Pairs of falcons were worshipped in the temples and falcons were buried in the tombs of royalty. Ultimately, man recognized a personal use for hawks and began to trap them, using their strength and speed to hunt game. Ancient Asians passed on their knowledge of falconry to the Europeans of the Middle Ages. After the year 1066, falconry took hold to the extent that even the common citizens of London kept short-winged hawks. However, beginning with England's first hawk-fancier, Ethelbert II, an 8th century Saxon king of Kent, only nobles were allowed to use falcons. It was the peregrine falcon that was most widely used by royalty and it was considered the badge of a prince, duke or baron.

Falcons are streamlined hawks with longish, pointed wings, large head, and long tails tapering to the tip. They are rapid fliers with direct, choppy, powerful flight, though on occasion they will soar (glide) with tail spread. The peregrine falcon or duck hawk is the largest of the three common falcons of Virginia. It measures 18 to 19 inches in length, while the merlin or pigeon hawk measures 11 to 13 inches and the kestrel or sparrow hawk reaches 8 to 11 inches. Other falcons of North America include the gyrfalcon of the arctic, prairie falcon of the west and the aplomado falcon of northern Mexico.

The male peregrine is bluish-ash or slatey gray above with a light, creamy or yellowish breast barred with black or dark brownish gray. The female is more brownish above with brown markings on a yellowish-creamy breast. Both sexes have the distinctive facial pattern of black over the eyes, the female's being more brownish.

It is normally a bird of the coast, mountains and mature woodlands. Usually they are cliff-dwellers, favoring open sea coast areas. It is not unusual to find it among the skyscrapers of big cities. The peregrine preys almost exclusively on other birds which it kills in the air. They are incredibly swift and agile and are capable of speeds of 60 miles per hour in level flight, and up to 180 m.p.h. in a steep dive. One peregrine reportedly hit 275 m.p.h. in a dive according to one test. Seldom missing, it usually sends its victim spinning to the ground from a crushing blow of its

big, powerful feet which are clenched like fists. At other times, the prey is merely plucked from the air.

Undoubtedly, the peregrine's eyesight is among the keenest of any creature. Studies show that they are able to see in full color with eyes that allow for rapid adjustment of focus while diving, giving them accuracy in perception of distance, movement, shape and closing speed. The black markings around their eyes absorb light, a principal that football players, skiers, and the Eskimos have utilized by darkening the area below their eyes to reduce the glare. The duck hawk also has specially-designed contours in its nostrils which break up the air as it dives at high speeds, enabling it to breathe as it plunges earthward at nearly 200 m.p.h.

The peregrine normally nests in the crevices of inaccessible cliffs, where it commands a view of its total surroundings. Frequently it will nest near the tops of large buildings on window ledges. About two to six eggs are laid and the downy young are fed small birds as they grow. While not considered numerous, the peregrine enjoys worldwide distribution.

The use of pesticides, especially DDT, has affected many predatory species. Predators like the peregrine, osprey, and the bald eagle are at the tops of their respective food chains. Consumption of foods that contained DDT ultimately began to alter bodily functions of nesting falcons. They began storing DDT in body fats. Estrogen, an important female hormone closely involved in mediating calcium metabolism in birds, was especially sensitive to the effects of DDT. As the pesticides affected certain enzymes in the liver, which activate certain natural sex hormones, the normal calcium metabolism was altered. The birds began to lay unusually thin-shelled eggs which broke when they attempted to incubate them. Nesting failure became widespread and the peregrine was threatened with extinction.

Now that the use of DDT and pesticides has been curtailed, the peregrine is coming back. Biologists are attempting to re-establish the peregrine to its coastal ranges through a program termed "hacking." Hacking is a method of raising pre-flying young birds in an elevated hacking structure, where they are fed and cared for away from any parent birds. Like waterfowl and other birds, falcons have a tendency to consider "home" the place they were raised and learned to fly. Thus biologists hope that a peregrine raised in such a way will return and again inhabit the range it once occupied.



